

09010-103WO1 SEQ ID listing.txt

SEQUENCE LISTING

<110> Callen, Walter

<120> XYLOSE ISOMERASES, NUCLEIC ACIDS ENCODING THEM AND METHODS FOR MAKING AND USING THEM

<130> 09010-103WO1

<140> not assigned

<141> 2003-10-21

<150> US 60/424,649

<151> 2002-11-06

<160> 4

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1335

<212> DNA

<213> unknown

<220>

<223> obtained from an environmental sample

<400> 1

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catctgaagt	tctcagttgc	attctggcac	accttcgtga	acgaggggag	agatcccctc	180
ggagatccaa	cagccgaccg	accctggaac	aagtacacag	accctatgga	caaagccttt	240
gcaaggggtg	acgccctctt	tgaattctgt	gaaaaactca	acatcgagta	cttctgtttt	300
cacgacaggg	acatagctcc	tgaaggaaag	actctgaggg	agacaaacaa	gatcctggac	360
aaggctcgtg	agaggatcaa	agagagaatg	aaagacagca	acgtaaaact	cctctggggg	420
actgcgaatc	tcttttctca	tccaagggtac	atgcacggtg	cggcgacaac	ctgtagtgtc	480
gatgtcttcg	cctacgcggc	agcacaggtg	aagaaagccc	ttgagatcac	aaaagagctt	540
ggaggagaag	ggtacgtctt	ttgggggtgga	agagaagggg	acgagacact	cctcaacacg	600
gatctggatc	ttgaacttgg	aaacctcgct	cgcttcctca	gaatggctgt	ggattacgca	660
aagaagatag	gtttcaacgg	ccagtttctc	atcgagccta	aaccgaagga	accaacgaag	720
catcagtacg	acttcgatgt	tgcgacggct	tacgccttcc	tgaagagtca	cggtctcgat	780
gagtatttca	aattcaacat	cgaagcgaac	catgccacac	ttgctggtca	caccttccag	840
cacgaactga	ggatggcaag	aattcttggg	aaactcggca	gcacgcgacg	gaaccagggg	900
gaccttctgc	tcggctggga	caccgaccag	ttcccaacaa	acgtctacga	cacaactctt	960
gccatgtatg	aagtgataaa	agcgggtggg	tttacaacaa	gtggtctcaa	cttcgatgca	1020
aaggtgagaa	gagcttctta	caaggtggaa	gatctcttca	tcgggcacat	agcaggaatg	1080
gatactttcg	cactcggttt	caaaatagcc	cacaaacttg	taaaagacgg	tgtgttcgac	1140
aagttcattg	aagaaaaata	caaaagtttc	agagagggca	tcggaaaaga	gatcgttgaa	1200
ggaaaggcag	atthttgaaa	gctggaaagc	tatataatag	acaaggaaga	gatggagctt	1260
ccatctggaa	agcaggagta	tttggaaggt	ctcctcaaca	gctacatagt	gaaaacgatc	1320
tccgagttga	ggtga					1335

<210> 2

<211> 444

<212> PRT

<213> unknown

<220>

<223> obtained from an environmental sample

<400> 2

Met	Thr	Glu	Phe	Phe	Pro	Glu	Ile	Pro	Lys	Ile	Gln	Phe	Glu	Gly	Lys
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Glu	Ser	Thr	Asn	Pro	Phe	Ala	Phe	Lys	Phe	Tyr	Asp	Pro	Asn	Glu	Val
			20					25					30		
Ile	Asp	Gly	Lys	Pro	Leu	Lys	Asp	His	Leu	Lys	Phe	Ser	Val	Ala	Phe

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Trp His 35 Thr Phe Val Asn 40 Glu Gly Arg Asp Pro 45 Phe Gly Asp Pro Thr
 50 55 60
 Ala Asp Arg Pro Trp Asn Lys Tyr Thr Asp Pro Met Asp Lys Ala Phe
 65 70 75 80
 Ala Arg Val Asp Ala 85 Leu Phe Glu Phe Cys 90 Glu Lys Leu Asn Ile Glu
 95
 Tyr Phe Cys Phe 100 His Asp Arg Asp Ile 105 Ala Pro Glu Gly Lys Thr Leu
 110
 Arg Glu Thr 115 Asn Lys Ile Leu Asp 120 Lys Val Val Glu Arg Ile Lys Glu
 125
 Arg Met Lys Asp Ser Asn Val 135 Lys Leu Leu Trp Gly Thr Ala Asn Leu
 140
 Phe Ser His Pro Arg Tyr 150 Met His Gly Ala 155 Thr Thr Cys Ser Ala
 160
 Asp Val Phe Ala Tyr 165 Ala Ala Ala Gln Val 170 Lys Lys Ala Leu Glu Ile
 175
 Thr Lys Glu Leu 180 Gly Gly Glu Gly Tyr Val Phe Trp Gly Gly Arg Glu
 185
 Gly Tyr Glu Thr 195 Leu Leu Asn Thr 200 Asp Leu Asp Leu Glu Leu Gly Asn
 205
 Leu Ala Arg Phe Leu Arg Met 215 Ala Val Asp Tyr Ala Lys Lys Ile Gly
 220
 Phe Asn Gly Gln Phe Leu 230 Ile Glu Pro Lys Pro 235 Lys Glu Pro Thr Lys
 240
 His Gln Tyr Asp Phe 245 Asp Val Ala Thr Ala Tyr Ala Phe Leu Lys Ser
 255
 His Gly Leu Asp Glu Tyr Phe Lys 265 Phe Asn Ile Glu Ala Asn His Ala
 270
 Thr Leu Ala Gly His Thr Phe Gln His Glu Leu Arg Met Ala Arg Ile
 285
 Leu Gly Lys Leu Gly Ser 295 Ile Asp Ala Asn Gln Gly Asp Leu Leu Leu
 300
 Gly Trp Asp Thr Asp Gln 310 Phe Pro Thr Asn Val Tyr Asp Thr Thr Leu
 320
 Ala Met Tyr Glu Val 325 Ile Lys Ala Gly Gly Phe Thr Lys Gly Gly Leu
 335
 Asn Phe Asp Ala Lys Val Arg Arg Ala 345 Ser Tyr Lys Val Glu Asp Leu
 350
 Phe Ile Gly His Ile Ala Gly Met Asp Thr Phe Ala Leu Gly Phe Lys
 365
 Ile Ala His Lys Leu Val 375 Lys Asp Gly Val Phe Asp Lys Phe Ile Glu
 380
 Glu Lys Tyr Lys Ser Phe 390 Arg Glu Gly Ile Gly Lys Glu Ile Val Glu
 400
 Gly Lys Ala Asp Phe 405 Glu Lys Leu Glu Ala Tyr Ile Ile Asp Lys Glu
 415
 Glu Met Glu Leu Pro Ser Gly Lys Gln 425 Glu Tyr Leu Glu Ser Leu Leu
 430
 Asn Ser Tyr Ile Val Lys Thr Ile Ser Glu Leu Arg
 435 440

<210> 3
 <211> 1335
 <212> DNA
 <213> unknown

<220>
 <223> obtained from an environmental sample

<400> 3
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 catttgaaat tctccgttgc tttctggcac acttttgtaa acgaaggctg agatcccttc 180
 ggtgaccca ctgctgaaag accctggaac aagtattcgg atcccatgga caaagcggtt 240
 gcaagagtgg atgctttatt cgaattctgt gagaaactca atattgaata cttttgtttt 300
 catgacagag acattgcacc cgaagggaac actctgagag agacgaacaa aattctggac 360

09010-103WO1 SEQ ID listing.txt

aaagtgtgtg	agaaaaataaa	agaacgaatg	aaggaaagca	atgtgaaact	cctttggggg	420
actgccaatc	tgttctcaca	tcctcggtag	atgcacgggtg	cggcaactac	ttgcagcgcc	480
gatgtttttg	catacgctgc	tgcacagggtg	aaaaaagcgt	tggagattac	gaaggaactt	540
ggaggagaag	gatatgtttt	ttggggcggt	agagaaggat	acgaaacctt	gctcaacacg	600
gatttgggat	tggaaactcga	aaacctcgcg	aggttcctca	gaatggccgt	agagtacgca	660
aagaagatag	gttttgatgg	acagttcctc	atagaacca	aaccaaaaga	accacaaaa	720
catcagtag	atttcgacgt	agcgaccgca	tacgccttct	tgaaaactca	cgatttggat	780
gaatacttca	agttcaacat	agaagcta	cacgcaacac	tcgctgggtca	tactttccag	840
catgaattga	gaatggccag	aatcctcgga	aaattcgga	gtatcgacgc	aaatcaaggc	900
gatcttctgt	tgggatggga	caccgatcaa	tttccaacga	acgtatacga	tacaactctt	960
gccatgtacg	aggttataaa	agcagggggt	ttcacaaaag	gtggtctcaa	cttcgacgcc	1020
aaagttagac	gtgcttctta	caaggtagag	gatctcttca	tcgggcatat	agtaggaata	1080
gacactttcg	cactcgggtt	caagatagcc	tacaaacttg	taaaagacgg	cgtatttcgac	1140
agattcggtg	aggaaaaata	cagaagtttc	agagaaggta	ttggaaaaga	aatattggaa	1200
ggaaaagcag	attttgaaaa	actagaatcg	tatataatag	acaaagaaga	tggtgaactt	1260
ccatctggaa	aacaggagta	tcttgaaagt	ttgctcaaca	gctatatcgt	gaagaccgta	1320
tcagaactga	ggtga					1335

<210> 4
 <211> 444
 <212> PRT
 <213> unknown

<220>
 <223> obtained from an environmental sample

<400> 4
 Met Thr Glu Phe Phe Pro Glu Ile Pro Lys Ile Gln Phe Glu Gly Lys
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 Glu Ser Asn Asn Pro Leu Ala Phe Lys Phe Tyr Asp Pro Asp Glu Val
 20 25 30
 Ile Asp Gly Lys Pro Leu Lys Asp His Leu Lys Phe Ser Val Ala Phe
 35 40 45
 Trp His Thr Phe Val Asn Glu Gly Arg Asp Pro Phe Gly Asp Pro Thr
 50 55 60
 Ala Glu Arg Pro Trp Asn Lys Tyr Ser Asp Pro Met Asp Lys Ala Phe
 65 70 75 80
 Ala Arg Val Asp Ala Leu Phe Glu Phe Cys Glu Lys Leu Asn Ile Glu
 85 90 95
 Tyr Phe Cys Phe His Asp Arg Asp Ile Ala Pro Glu Gly Lys Thr Leu
 100 105 110
 Arg Glu Thr Asn Lys Ile Leu Asp Lys Val Val Glu Lys Ile Lys Glu
 115 120 125
 Arg Met Lys Glu Ser Asn Val Lys Leu Leu Trp Gly Thr Ala Asn Leu
 130 135 140
 Phe Ser His Pro Arg Tyr Met His Gly Ala Ala Thr Thr Cys Ser Ala
 145 150 155 160
 Asp Val Phe Ala Tyr Ala Ala Ala Gln Val Lys Lys Ala Leu Glu Ile
 165 170 175
 Thr Lys Glu Leu Gly Gly Glu Gly Tyr Val Phe Trp Gly Gly Arg Glu
 180 185 190
 Gly Tyr Glu Thr Leu Leu Asn Thr Asp Leu Gly Leu Glu Leu Glu Asn
 195 200 205
 Leu Ala Arg Phe Leu Arg Met Ala Val Glu Tyr Ala Lys Lys Ile Gly
 210 215 220
 Phe Asp Gly Gln Phe Leu Ile Glu Pro Lys Pro Lys Glu Pro Thr Lys
 225 230 235 240
 His Gln Tyr Asp Phe Asp Val Ala Thr Ala Tyr Ala Phe Leu Lys Thr
 245 250 255
 His Asp Leu Asp Glu Tyr Phe Lys Phe Asn Ile Glu Ala Asn His Ala
 260 265 270
 Thr Leu Ala Gly His Thr Phe Gln His Glu Leu Arg Met Ala Arg Ile
 275 280 285
 Leu Gly Lys Phe Gly Ser Ile Asp Ala Asn Gln Gly Asp Leu Leu Leu
 290 295 300
 Gly Trp Asp Thr Asp Gln Phe Pro Thr Asn Val Tyr Asp Thr Thr Leu
 305 310 315 320

09010-103W01 SEQ ID listing.txt

Ala	Met	Tyr	Glu	Val	Ile	Lys	Ala	Gly	Gly	Phe	Thr	Lys	Gly	Gly	Leu
				325					330					335	
Asn	Phe	Asp	Ala	Lys	Val	Arg	Arg	Ala	Ser	Tyr	Lys	Val	Glu	Asp	Leu
			340					345					350		
Phe	Ile	Gly	His	Ile	Val	Gly	Ile	Asp	Thr	Phe	Ala	Leu	Gly	Phe	Lys
		355					360					365			
Ile	Ala	Tyr	Lys	Leu	Val	Lys	Asp	Gly	Val	Phe	Asp	Arg	Phe	Val	Glu
	370					375					380				
Glu	Lys	Tyr	Arg	Ser	Phe	Arg	Glu	Gly	Ile	Gly	Lys	Glu	Ile	Leu	Glu
	385				390					395					400
Gly	Lys	Ala	Asp	Phe	Glu	Lys	Leu	Glu	Ser	Tyr	Ile	Ile	Asp	Lys	Glu
				405					410					415	
Asp	Val	Glu	Leu	Pro	Ser	Gly	Lys	Gln	Glu	Tyr	Leu	Glu	Ser	Leu	Leu
			420					425					430		
Asn	Ser	Tyr	Ile	Val	Lys	Thr	Val	Ser	Glu	Leu	Arg				
		435					440								